

## Course Description

**Title:**

Vestibular Rehabilitation: An Advanced Course and Update

**Date:**

May 1-2, 2020

Date of First Course: 2007

Most Recent Review: June 2019

**Location:**

Zoom Webinar

University of Pittsburgh

**Target Audience:**

Physical therapists, physicians, nurses, and physician assistants who have a basic knowledge of vestibular disorders.

**Level of Learner:**

Advanced

**Program Overview:**

**Vestibular Rehabilitation: An Advanced Course and Update** is designed to provide an update regarding the treatment of persons with balance/vestibular disorders and the underlying science. Some of the topics include central causes of dizziness (e.g. anxiety and migraine related dizziness), BPPV, concussion management, vestibular function testing, alternative therapies, pharmacotherapy, cervical dizziness, back to work and driving decisions, and innovative therapies for person with vestibular disorders. Each of the speakers is an expert from one of several disciplines including physical therapy, neurology, neuro-optometry, audiology, psychiatry, psychology, and bioengineering. There are scheduled question and answer periods following each session at which participants can ask the faculty questions.

Keynote speakers include Dr. Joseph Furman and Dr. Susan L. Whitney. Dr. Furman is co-director of the course and has numerous Medline references to his credit. He is co-author of the book entitled "Vestibular Disorders: A Case Oriented Approach" published by Oxford University Press. He has recently published the 3rd edition with Dr. Stephen Cass and Dr. Susan Whitney. Dr. Furman has been an NIH supported clinician-scientist his entire career and is a board certified neurologist.

Dr. Whitney is a physical therapist who has published extensively. She has treated persons with vestibular disorders for over 30 years. She is an active clinical researcher and is actively involved in patient care. Drs. Furman and Whitney will provide a unique physician/physical therapist team perspective.

**Criteria for Successful Completion:**

- Evidence of attendance by record of the Zoom Webinar report
- Completion of Post-test with a score of 70%

## University of Pittsburgh Advanced Vestibular Course

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**Friday, May 1, 2020**

<b>Time</b>	<b>Speaker</b>	<b>Topic</b>
7:30 – 8:15	None	Logging in and Troubleshooting
8:15 – 8:30	Course directors	Introduction of the Course Instruction on getting best online experience
8:30 – 9:05	Anthony Kontos, PhD Shawn Eagle, PhD	Vestibular and Balance Impairments after Concussion
9:05 – 9:45	Anne Mucha, DPT, MS, NCS	Vestibular Rehabilitation Following Concussion
9:45 – 10:20	Joseph Furman, MD, PhD	Central Vestibular Disorders
<b>10:20 – 10:35</b>	<b>Break</b>	
10:35 – 11:05	Catherine Palmer, PhD	Hearing Challenges Relevant to Physical Therapists
11:05 – 11:40	Robert Kaniecki, MD	Headache for Physical Therapists
<b>11:40 – 12:30</b>	<b>Lunch</b>	
12:30 – 1:10	Nathan Steinhafel, OD, MS	Neuro-optometry Treatment for Ocular-motor Disorders
1:10 – 1:45	Susan Whitney, PT, PhD, NCS	Acute Vestibular Disorders
1:45 – 2:20	Ryan Soose, MD	Sleep and Dizziness – Are They Related?
<b>2:20 – 2:35</b>	<b>Break</b>	
2:35 – 3:10	Brooke Klatt, DPT, PhD, NCS	Vestibular Contributions to Cognition
3:10 – 3:40	Rakie Cham, PhD	Visual Influences on Postural Control
3:40 – 4:40	Susan Whitney, PT, PhD, NCS	Newest Advances in Vestibular Rehabilitation: What will be coming to you soon
<b>4:40</b>	<b>Adjournment</b>	

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## University of Pittsburgh Advanced Vestibular Course

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**Saturday, May 2, 2020**

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<b>Time</b>	<b>Speaker</b>	<b>Topic</b>
7:30 – 8:00	None	Logging in and Troubleshooting
8:00 – 9:00	Susan Whitney, PT, PhD, NCS	Benign Paroxysmal Positional Vertigo
9:00 – 9:35	Joseph Furman, MD, PhD	Pharmacotherapy of Dizziness
<b>9:35 – 9:50</b>	<b>Break</b>	
9:50 – 10:30	Jeffrey Staab, MD, MS	Psychiatric Aspects of Vestibular Disorders
10:30 – 11:00	Carrie Hoppes, DPT, PhD, NCS	Cervicogenic Dizziness
11:00 – 11:30	Patrick Sparto, PT, PhD	Mobility and Aging
11:30 – 12:05	Joseph Furman, MD, PhD	Management of the Medically Refractory Dizzy Patient
<b>12:05 – 1:00</b>	<b>Lunch</b>	
1:00 – 1:35	Jeffrey Staab, MD, MS	Persistent Postural-Perceptual Dizziness
1:35 – 2:05	Carrie Hoppes, DPT, PhD, NCS	Vestibular Habituation for Visual Vertigo and Motion Sickness
2:05 – 2:40	Patrick Sparto, PT, PhD	Facilitators and Barriers to Compensation
<b>2:40 – 2:55</b>	<b>Break</b>	
2:55 – 3:30	Joseph Furman, MD, PhD	Vestibular Laboratory Testing
3:30 – 4:05	Gregory Marchetti, PT, PhD	Occupational and Driving-Related Issues of Dizziness and Imbalance
4:05 – 5:00	Course Faculty	Question and Answer
<b>5:00</b>	<b>Adjournment</b>	

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## **Objectives**

The participant will be able to:

1. Discuss concussion-induced impairments of balance and vestibular dysfunction, and understand the role of cognitive testing in return-to-play.
2. Describe the manifestations of vestibular, oculomotor, and visual sensitivity impairments after concussion, and ways to assess and treat these impairments.
3. Differentiate the different causes of central vestibular dysfunction.
4. Discuss the hearing loss may affect interactions with individuals with vestibular disorders, and how to best communicate with a person with hearing loss.
5. Compare and contrast the different types and treatment options available for someone with headache.
6. Compare the assessment techniques and treatment options for oculomotor dysfunction after concussion.
7. Discuss the treatment of acute vestibular disorders.
8. Describe how sleep disorders, especially obstructive sleep apnea, interact with vestibular disorders and affect management of vestibular disorders.
9. Understand the interaction between cognitive function and vestibular disorders.
10. Discuss the influence of the visual system on postural control
11. Compare advances in treatment interventions for persons with vestibular disorders.
12. Discuss the most recent advances in BPPV management over the last 5 years.
13. Describe pharmacotherapy for patients with balance and vestibular disorders.
14. Differentiate anxiety-related dizziness from other vestibular disorders and understand its management from a psychiatric perspective.
15. Recognize cervical dizziness with its typical signs and symptoms and discuss treatment options.
16. Discuss medical management of chronic vestibular disorders not amenable to vestibular rehabilitation.
17. Describe the clinical characteristics of Persistent Postural-Perceptual Dizziness.
18. Design an exercise program for people with visual vertigo and motion sickness.
19. Describe the factors that affect adaptation of the VOR, both facilitators and barriers.
20. Understand new advances in assessing vestibular function, including VEMP testing, and how this relates to intervention.
21. Identify balance assessment tools that may be helpful in determining whether a person can return to work after a vestibular disorder, and understand how driving is affected by vestibular disorders.

**Continuing Education Credit for Physical Therapists and Physical Therapist Assistants  
(CEUs will be updated on the day of course)**

The American Physical Therapy Association (APTA) awards 14 Continuing Education Units for PTs and PTAs (11 general and 3 Direct Access).

**CME Accreditation and Designation Statement:**

In support of improving patient care, the University of Pittsburgh is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

**Physician (CME)**

The University of Pittsburgh designates this live activity for a maximum of 14.5 *AMA PRA Category 1 Credits*<sup>™</sup>. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Other health care professionals will receive a certificate of attendance confirming the number of contact hours commensurate with the extent of participation in this activity.

## Faculty Listing

### **Rakié Cham, PhD**

Associate Professor, Department of Bioengineering  
University of Pittsburgh  
Pittsburgh, PA

### **Shawn Eagle, PhD, ATC, CSCS**

Post-doctoral Fellow, Department of Orthopaedic Surgery  
University of Pittsburgh  
Pittsburgh, PA

### **Joseph M. Furman, MD, PhD, FAAN**

Professor, Department of Otolaryngology  
University of Pittsburgh  
Director of the Division of Balance Disorders, University of Pittsburgh Medical Center  
Pittsburgh, PA

### **LTC Carrie Hoppes, DPT, PhD, NCS, OCS, ATC, CSCS**

Lieutenant Colonel, US Army  
Deputy Program Director, Army-Baylor University Doctor of Physical Therapy Program  
San Antonio, TX

### **Robert Kaniecki, MD**

Associate Professor, Department of Neurology  
University of Pittsburgh  
Director, Headache Center, University of Pittsburgh Medical Center  
Pittsburgh, PA

### **Brooke Klatt, DPT, PhD**

Assistant Professor, Department of Physical Therapy  
University of Pittsburgh  
Pittsburgh, PA

### **Anthony Kontos, PhD**

Director of Research, UPMC Sports Medicine Concussion Program  
Associate Professor, Department of Orthopaedic Surgery  
University of Pittsburgh  
Pittsburgh, PA

### **Gregory F. Marchetti, PT, PhD**

Associate Professor, Department of Physical Therapy  
Duquesne University  
Pittsburgh, PA

### **Anne Mucha, DPT, MS, NCS**

Assistant Director of Neurological Services  
Coordinator of Concussion Vestibular Programming for the Centers for Rehab Services  
Centers for Rehab Services  
Pittsburgh, PA

### **Catherine Palmer, PhD**

Associate Professor, Department of Communication Sciences and Disorders  
University of Pittsburgh  
Director, Division of Audiology and Hearing Aids, University of Pittsburgh Medical Center  
Pittsburgh, PA

**Ryan Soose, MD**

Associate Professor, Department of Otolaryngology  
University of Pittsburgh  
Director, Division of Sleep Medicine and Upper Airway Surgery, University of Pittsburgh Medical Center  
Pittsburgh, PA

**Patrick J. Sparto, PT, PhD**

Associate Professor, Department of Physical Therapy  
University of Pittsburgh  
Pittsburgh, PA

**Jeffrey P. Staab, MD, MS**

Professor of Psychiatry  
Mayo Clinic  
Rochester, MN

**Nathan Steinhafel, MS, OD, FAAO**

Doctor of Optometry  
Armstrong Eye Care Associates  
Pittsburgh, PA

**Susan L. Whitney, PT, PhD, NCS, FAPTA**

Professor, Department of Physical Therapy  
University of Pittsburgh  
Pittsburgh, PA

**FACULTY DISCLOSURE**

**All individuals in a position to control the content of this education activity including members of the planning committee, speakers, presenters, authors, and/or content reviewers have disclosed all relevant financial relationships with any proprietary entity producing, marketing, re-selling, or distributing health care goods or services, used on, or consumed by, patients.**

**The following relevant financial relationships were disclosed:**

Carrie Hoppes, DPT, PhD: Employed by the US ARMY  
Anthony Kontos, PhD: Research Support from the National Football League, Book Royalties from American Psychological Association  
Anne Mucha, DPT, MS, NCS: Continuing Education Speakers Bureau, MedBridge, APTA  
Ryan Soose, MD: Research Support, Inspire Medical Systems; Consultant, Inspire Medical Systems, Galvani Bioelectronics, Invicta Medical, Enhale Medical, Cryosa, Smith & Nephew  
Nathan Steinhafel, MS, OD, FAAO: Consultant, AOA, POA; Continuing Education Speakers Bureau with Impact Technologies  
Susan Whitney, PT, PhD: Research Support, SBIR from Department of Defense; Consultant, Intelligent Automation; Continuing Education Speakers Bureau with MedBridge

No other planners, members of the planning committee, speakers, presenters, authors, content reviewers and/or anyone else in a position to control the content of this education activity have relevant financial relationships to disclose.

**DISCLAIMER STATEMENT**

The information presented at this CME program represents the views and opinions of the individual presenters, and does not constitute the opinion or endorsement of, or promotion by, the UPMC Center for Continuing Education in the Health Sciences, UPMC / University of Pittsburgh Medical Center or Affiliates and University of Pittsburgh School of Medicine. Reasonable efforts have been taken intending for educational subject matter to be presented in a balanced, unbiased fashion and in compliance with regulatory requirements. However, each program attendee must always use his/her own personal and professional judgment when considering further application of this information, particularly as it may relate to patient diagnostic or treatment decisions including, without limitation, FDA-approved uses and any off-label uses.

The Center for Continuing Education and the sponsoring department do not certify that through participation in this program participants are competent to perform certain procedures or skills.

**Acknowledgements:**

The Course directors kindly thank all of the presenters who have devoted much time and interest toward this course. In addition, we thank all of the students, residents, and staff who do much of the hard work in making the Course a success. Finally, we are thankful for the generous support of the Departments of Physical Therapy and Otolaryngology at the University of Pittsburgh, Centers for Rehab Services of the UPMC, the American Physical Therapy Association, and the University of Pittsburgh School of Medicine Center for Continuing Education in the Health Sciences.



## **Speaker Biosketches:**

### **Rakié Cham, PhD**

Dr. Cham is an Associate Professor in the Departments of Bioengineering, Ophthalmology and Physical Therapy at the University of Pittsburgh. She received her BS and MS degrees in Physics from McGill University in Montréal (Canada) and her PhD degree in Bioengineering from the University of Pittsburgh in Pittsburgh (PA). The overarching goal of Dr. Cham's research is improving postural stability and reducing falls risk and related musculoskeletal injuries. The problem of falls is a growing public and occupational health concern. To achieve her goal, Dr. Cham focuses her research on understanding the underlying mechanisms of balance and gait impairments. Populations of interest include older adults and adults with a disability (sensory, central or cognitive impairment). Due to the need of understanding the multidimensional factors contributing to falls risk, Dr. Cham collaborates with researchers from a wide range of disciplines, including physical therapy, occupational therapy, psychology, psychiatry, geriatrics, neurology, neuroscience, radiology, bioengineering, robotics and statistics. Dr. Cham's research has been supported by federal agencies, e.g. The National Institute of Occupational Safety and Health (NIOSH) and The National Institutes of Health (NIH), industry and various foundations.

*Dr. Cham is an employee of the University of Pittsburgh.*

### **Shawn Eagle, PhD, ATC, CSCS**

Shawn Eagle is a Post-doctoral Research Fellow in the Department of Orthopaedic Surgery. Dr. Eagle received his Ph.D. in Rehabilitation Science from the University of Pittsburgh in 2019. He currently works in the UPMC Sports Medicine Concussion Program, and his current fields of interest are enhancing our understanding and potential treatment strategies for the clinical sub-types of concussion, identifying risk factors for those sub-types, and improving return-to-play/duty protocols following recovery from concussion. Dr. Eagle has received funding from the American College of Sports Medicine and the National Athletic Trainers Association.

*Dr. Eagle is an employee of the University of Pittsburgh.*

### **Joseph M. Furman, MD, PhD, FAAN**

Joseph Furman is a Professor in the Departments of Otolaryngology, Neurology, Bioengineering, and Physical Therapy at the University of Pittsburgh and director of the division of balance disorders at the University of Pittsburgh Medical Center. His education includes an M.D. and a Ph.D. in Bioengineering from the University of Pennsylvania, a residency in neurology at UCLA, and a fellowship in non-surgical otology at the University of Toronto. Dr. Furman's area of expertise is vestibular function and balance disorders. Dr. Furman is a board certified neurologist, a fellow of the American Academy of Neurology and a member of the American Neurological Association. Dr. Furman's clinical activities include the evaluation of patients with dizziness and disequilibrium and consultation neurology. Dr. Furman's research interests include vestibulo-ocular function in older persons, otolith-ocular reflexes, and migraine-related dizziness. Dr. Furman has received several NIH grants in these research areas and has published over 180 refereed articles.

*Dr. Furman is an employee of the University of Pittsburgh and UPMC.*

**LTC Carrie Hoppes, DPT, PhD, NCS, OCS, ATC, CSCS**

Lieutenant Colonel Carrie Hoppes is an Active Duty Army Physical Therapist and the Deputy Director of the Army-Baylor University Doctoral Program in Physical Therapy. She graduated from Lock Haven University of Pennsylvania in 2003 and the U.S. Army Baylor-University Doctoral Program in Physical Therapy in 2006. She completed her PhD in Rehabilitation Science in 2017 at the University of Pittsburgh. She leads Line of Research 3: Combat Trauma Management and Rehabilitation Research for the Army Medical Specialist Corps, which encompasses TBI and Psychological Health research. She is also a co-founder of the Military Vestibular Assessment and Rehabilitation Course.

*Dr. Hoppes is an employee of the US Army.*

**Robert Kaniecki, MD**

Robert Kaniecki is an Associate Professor of Neurology at the University of Pittsburgh. He graduated from the University of Notre Dame and attended the Washington University School of Medicine. Following his graduation, he completed his medical and neurology training at Barnes Hospital and Washington University, where he served as chief resident his final year. In 2000 he was appointed Director of the University of Pittsburgh Headache Center. Dr. Kaniecki has authored or co-authored numerous articles, book chapters, and abstracts. His research interests include patient satisfaction with headache treatments, neck pain associated with migraine headache, the overlap between tension and migraine headaches, and outpatient protocols designed to address chronic daily headache. Dr. Kaniecki is a member of numerous professional and scientific societies, including the American Headache Society, the National Headache Foundation, the International Headache Society and the Primary Care Network. Dr. Kaniecki is passionate about headache education and he commits significant time and energy into teaching primary care providers and specialists about headache patients and their management. He has received numerous teaching awards including the National Headache Foundation's Lectureship Award and was the recipient of the prestigious Headache Healthcare Provider of the Year from the National Headache Foundation.

*Dr. Kaniecki is an employee of the University of Pittsburgh and UPMC.*

**Brooke Klatt, DPT, PhD, NCS**

Brooke Klatt obtained her Bachelors of Science in Kinesiology from Penn State University, her clinical Doctorate of Physical Therapy from New York University, and her PhD in Rehabilitation Sciences from the University of Pittsburgh. She was a Postdoctoral Research Fellow at Johns Hopkins University School of Medicine in the Department of Otolaryngology - Head and Neck Surgery where she investigated the influence of vestibular impairment on spatial cognition. Brooke is currently an Assistant Professor in the Department of Physical Therapy at the University of Pittsburgh. Brooke works clinically in outpatient neurologic and vestibular rehabilitation at UPMC Centers for Rehab Services in Pittsburgh, PA and is a board certified neurologic clinical specialist.

*Dr. Klatt is an employee of University of Pittsburgh and UPMC Centers for Rehab Services.*

**Anthony P. Kontos, PhD**

Dr. Anthony P. Kontos is Research Director for the UPMC Sports Medicine Concussion Program and Associate Professor in the Departments of Orthopaedic Surgery and Sports Medicine and Rehabilitation at the University of Pittsburgh. He has specialized in concussion research for 16 years and has 300+ professional publications and 315+ professional presentations. His research is funded by the *Centers for Disease Control and Prevention*, *Department of Defense*, *National Institutes of Health*, and *National Football League* and focuses on risk factors; neurocognitive/neuromotor effects; psychological issues; active, precision treatments; and concussion in military, pediatric, and sport populations. Dr. Kontos is a fellow and past-president of the *Society for Sport, Exercise & Performance Psychology*, and a fellow of the *National Academy of Kinesiology*, *Association for Applied Sport Psychology*, and *Eastern Psychological Association*. He is also the lead co-author (with Dr. Collins) of *Concussion: A Clinical Profile Based Approach to Assessment and Treatment*.

*Dr. Kontos is an employee of University of Pittsburgh.*

**Gregory F. Marchetti, PT, PhD, CPE**

Greg Marchetti is an Associate Professor in the Department of Physical Therapy at Duquesne University. Dr. Marchetti earned an entry level Physical Therapy degree from the University of Maryland and a Master of Science from the School of Health and Rehabilitation Sciences at the University of Pittsburgh. He holds a Ph.D. in epidemiology with an emphasis in non-communicable disease from the Graduate School of Public Health at the University of Pittsburgh. With expertise in epidemiology, measurement, data management and analysis, Dr. Marchetti has conducted research, published and presented nationally and internationally on the clinical measurement of gait and balance, disorders of balance and vestibular impairment, mild traumatic head injury, chronic disease, chronic pain management, health outcomes. He is a physical therapist for the Pittsburgh Catholic Charities Health Care System, a multidisciplinary service dedicated to the service of persons without access to health insurance. He is a certified professional ergonomist through the Board of Certification in Professional Ergonomics. He is on the editorial board of the *Journal of Neurological Physical Therapy*, and serves as peer reviewer for numerous academic publications. Dr. Marchetti is a member of the International Association for the Study of Pain and the American Conference of Governmental Industrial Hygienists.

*Dr. Marchetti is an employee of Duquesne University.*

**Anne Mucha, PT, DPT, MS, NCS**

Anne Mucha is the Coordinator of Vestibular Rehabilitation for the UPMC Sports Concussion Clinic and Centers for Rehab Services. She is a board certified clinical specialist in Neurologic Physical Therapy and a former facility director of the Balance/Vestibular Disorders Clinic at the Eye and Ear Institute. With over 20 years in treating individuals with neurologic conditions, she is also actively involved in clinical research related to the evaluation and management of patients following concussion. Dr. Mucha served as a member of the CDC panel of experts to develop clinical guidelines for diagnosis and management of mild traumatic brain injury among children and adolescents. She received her Bachelor's and Advanced Master's degrees in Physical Therapy from the University of Pittsburgh; and her Doctor of Physical Therapy degree from Temple University. Dr. Mucha is a national and international lecturer on topics related to concussion and is an adjunct faculty member in the School of Health and Rehabilitation Sciences at the University of Pittsburgh.

*Dr. Mucha is an employee of the UPMC Centers for Rehab Services.*

**Catherine Palmer, PhD**

Dr. Palmer is an Associate Professor in the Department of Communication Science and Disorders at the University of Pittsburgh and serves as the Director of Audiology and Hearing Aids at the University of Pittsburgh Medical Center including the UPMC Children's Hospital. Dr. Palmer conducts research in the areas of auditory learning post hearing aid fitting, the relationship between hearing, cognitive health and health outcomes, and matching technology to individual needs. She has published over 80 articles and book chapters in these topic areas as well as provided over 100 national and international presentations. Dr. Palmer teaches the graduate level amplification courses at the University of Pittsburgh and serves as Editor-in-Chief of Seminars in Hearing. Dr. Palmer opened the Musicians' Hearing Center at the University of Pittsburgh Medical Center in 2003 and has focused a great deal of energy on community hearing health since that time. This work has included a partnership with the Pittsburgh Public Schools and the Pittsburgh Symphony that promotes hearing protection for young and professional musicians. Dr. Palmer has received awards for excellence in teaching and mentoring from the University of Pittsburgh.

*Dr. Palmer is an employee of the University of Pittsburgh and UPMC.*

**Ryan Soose, MD**

Dr. Soose is the Director of the Division of Sleep Medicine and Upper Airway Surgery and Associate Professor in the Department of Otolaryngology at the University of Pittsburgh School of Medicine. He earned his undergraduate degree from the University of Notre Dame and completed medical and surgical training at UPMC. Board-certified in both otolaryngology and sleep medicine, Dr. Soose specializes in the medical and surgical treatment of snoring and obstructive sleep apnea. His research includes 1) hypoglossal nerve stimulation for sleep apnea and 2) sleep disorders in head injury patients as part of TEAM-TBI. Dr. Soose has over 50 peer-reviewed publications.

*Dr. Soose is an employee of the University of Pittsburgh and UPMC.*

**Patrick J. Sparto, PT, PhD**

Patrick Sparto is an Associate Professor in the Departments of Physical Therapy, Otolaryngology and Bioengineering. Dr. Sparto received his Ph.D. degree from Ohio State University in 1998. Dr. Sparto did his post-graduate work in the Department of Physical Therapy at the University of Pittsburgh from 1997-2000. He is the founding Co-Director of the DPT-PhD in Bioengineering program at Pitt. He works at the Centers for Rehab Services Vestibular Rehabilitation clinic and is active in the Academy of Neurologic Physical Therapy. Dr. Sparto's fields of interest include neuroimaging of balance and vestibular function, and management of vestibular disorders after concussion. Dr. Sparto has published over 100 refereed articles and has received funding from the NIH, and Department of Defense.

*Dr. Sparto is an employee of the University of Pittsburgh and UPMC Centers for Rehab Services.*

**Jeffrey Staab, MD, MS**

Jeffrey P. Staab, MD, MS is Professor of Psychiatry and Consultant in the Departments of Psychiatry and Psychology and Otorhinolaryngology – Head and Neck Surgery at Mayo Clinic, Rochester, MN. He received a BS in chemical engineering from Northwestern University, MD from the University of Pittsburgh, and MS in bioengineering from Carnegie-Mellon University, then completed his residency in psychiatry at the Walter Reed National Military Medical Center in Bethesda, MD. His research centers on problems at the interface of otology, neurology, and psychiatry. He is best known for investigations of chronic dizziness. He chaired the international committee of the Barany Society that defined persistent postural-perceptual dizziness (PPPD). He and his colleagues in the Mayo Integrated Neurovestibular Team evaluate and treat more than 2000 patients with vestibular and balance disorders each year.

*Dr. Staab is an employee of the Mayo Clinic.*

**Nathan Steinhafel, MS, OD, FAAO**

Doctor Nathan Steinhafel received a bachelor's degree from the University of Wisconsin and a Masters of Science degree in Neuro- Physiology from Brigham Young University. He obtained his Doctor of Optometry from the Southern California College of Optometry and received his clinical training from the Moran Eye Center, the Southwestern Eye Center, and Camp Pendleton Naval Hospital. He completed his residency at the University of Alabama at Birmingham in pediatric optometry, binocular vision, and vision rehabilitation, where he also served as a clinical instructor for ophthalmology and optometry residents. He served as clinical masked examiner for the Pediatric Eye Disease Investigator Group. He is a Fellow of the American Academy of Optometry with affiliation to the Neuro Optometry Section. He has been invited to lecture locally and nationally on the topic of visual and ocular outcomes following mild and traumatic brain injury. He is a clinician in private practice and specializes in the treatment of amblyopia, strabismus, visual dysfunction related to traumatic brain injury, vision therapy and rehabilitation.

*Dr. Steinhafel is an employee of Armstrong Eye Care Associates.*

**Susan L. Whitney, PT, PhD, NCS, FAPTA**

Susan Whitney is a Professor in the Departments of Physical Therapy and Otolaryngology. Dr. Whitney received her PhD in motor development/motor learning from the University of Pittsburgh and her professional physical therapy education from Temple University in Philadelphia, PA. Currently, she is a Professor in Physical Therapy in the School of Health and Rehabilitation Sciences and in the Department of Otolaryngology in the School of Medicine, University of Pittsburgh. Dr. Whitney is supported by an NIH SBIR grant and one from the Department of Defense. She has published over 120 refereed papers.

*Dr. Whitney is an employee of the University of Pittsburgh, and UPMC Centers for Rehab Services.*